# Strategies for the synthesis of lanthanum dialkyl complexes with monoanionic ancillary ligands

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*Published in:*
Organometallics

*DOI:*
10.1021/om700919h

# Supporting Information to:

## Strategies for the Synthesis of Lanthanum Dialkyl Complexes with Monoanionic Ancillary Ligands

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**In situ alkylation of $LaBr_3(THF)_4$.** A mixture of $LaBr_3(THF)_4$ (66 mg, 0.1 mmol) and 3 equiv of $LiCH_2SiMe_3$ (28 mg, 300 μmol) was dissolved in THF-$d_8$ at ambient temperature. $^1$H NMR (500 MHz, THF-$d_8$, 20 ºC): $\delta$ −0.21 (s, 27H, Si$Me_3$), −0.93 (s br, 6H, C$H_2$Si). $^{13}$C{$^1$H} NMR (125.8 MHz, THF-$d_8$, 20 ºC): $\delta$ 49.0 (br, $CH_2$Si), 5.69 (Si$Me_3$). In similar fashion, samples with La : Li ratios 1 : 4 and 1 : 5 were made. Their $^1$H NMR spectra are shown in Figure 1.

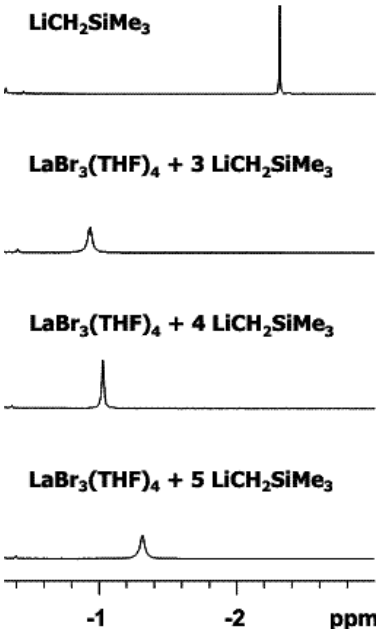


**Figure S-1.** $^1$H NMR spectra (THF-$d_8$, 25°C) of sequential reaction of $LiCH_2SiMe_3$ with $LaBr_3THF_4$.